Stanilite
nexus®RF

Nexus RF User Guide

Introduction to Nexus RF

NEXUS AREA CONTROLLER ROUTER

Thomas&Betts

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Table of Contents

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Are you prepared for an Emergency?

Owners and managers of buildings used by the public, whether that use is for work, play, shopping or any other purpose, are responsible for ensuring the safety of occupants in the event of an emergency. Their duty of care includes ensuring that emergency and evacuation lighting meets the requirements of Australian Standard AS2293.2 and also of the Building Code of Australia.

Whilst the design of emergency and evacuation lighting systems is the domain of the engineer and lighting systems professional, the building owner and manager is responsible for ensuring that:

• Emergency and evacuation lights are subjected to a discharge test every 6 months.

• A log book is kept, in which the discharge tests and results are recorded.

• Any defects that are identified when testing or at any other time are promptly rectified.

• Light emitting surfaces of emergency and evacuation light fittings are cleaned every 12 months.

Complying with these requirements can be both time consuming and expensive, particularly in larger buildings; manual testing of emergency and evacuation lights is labour intensive and potentially disruptive to the intended use of the building. Additionally, interruption of the power supply during manual testing may jeopardise the safety of building occupants.

What is Nexus?

Nexus® is a proven, well established and widely installed system for monitoring Stanilite® emergency and evacuation lighting. The system has been designed to enable maintenance personnel to easily test and maintain the emergency lighting system, without the need to walk through the building to visually verify performance and without the need to disrupt the power supply.

Nexus provides building owners and managers with the tools to effectively manage emergency lighting including:

• Manage changes in an installation, including addition and removal of fittings.

• Cost effectively carry out discharge testing in accordance with a user definable schedule, and record results in a format that satisfies the requirements of the site log book.

• Monitor and log the status of fittings commissioned on the system, including logging of events.

• Assign and re-assign fittings into logical or user defined groups, for example: by geographical area, by floor, by department, by base building and tenancy or any other structure.

• Produce reports on demand, including work instructions for repair of fittings which may be in fault mode.

Nexus is available in two separate configurations:

1. Nexus LX, a cabled system designated which utilises the lonworks protocol and relies upon data cable for

communication between fittings and network infrastructure. A server computer, running Nexus LX software, provides the user interface to the system.

2. Nexus RF, a wireless system which uses a proprietary protocol for radio frequency wireless communication between the fittings and network infrastructure. This system does not require a server computer, nor does it require data cabling to fittings. User interaction with Nexus RF is via a website browser on any computer with access to the network. Alternatively, the graphical user interface (GUI) integral to the system Area Controller may be used.

Why Choose Nexus RF?

There are many reasons for selecting Nexus RF as your emergency lighting monitoring system.

Endless Applications

Freed from the need for a dedicated cable network and PC, the Nexus RF system has the potential to be used in a variety of applications that previous systems found difficult or were cost prohibitive. These include:

• Upgrading existing buildings: without the need to run cables throughout the building, the upgrade of existing sites is child's play.

• Small Sites: the elimination of the PC as the head end coupled with the elimination of the data cable means that the cost to set up a small site is significantly reduced. This means that there are long term financial benefits even to sites under 100 fittings.

• Multiple buildings: the flexibility in backbone selection with the Nexus RF system means that running multiple buildings on one site through an integrated system is no hassle.

Cost Savings

Nexus RF will deliver the long term cost benefits of a monitored system along with the added advantage of reduced installation costs.

Slash Installation Costs

From the contractors point of view a Nexus RF system installs in the same way as a non-monitored single point system. Once the fittings are connected to the appropriate power circuit there is nothing else to do:

• Cost of data cable between nodes is totally eliminated.

• Cost of data cable installation is eliminated.

• Cost of checking and correcting data cable faults between fittings is eliminated.

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Ongoing Labour Savings

To ensure compliance with AS/NZS2293.2, testing of a building requires many hours of labour for qualified staff to manually inspect and test every emergency light fitting and record the results in a log book. Manual testing is therefore very difficult and expensive to do on a large scale.

Nexus RF enables the user to remotely activate light fittings and retrieve status information. The fittings will automatically send their status to the Area Controller in real-time ensuring the Area Controller always has an accurate record of the fitting's status. This information is then automatically stored in an electronic log book. Maintenance personnel need only attend to fittings that require maintenance.

Reliability

Emergency lighting is an essential building safety system. You cannot afford for this system to fall into disrepair and hence you need to be able to rely upon your monitoring system to accurately advise of required maintenance. Stanilite has built its reputation upon quality product and the Nexus RF system is the result of extensive and ongoing research into the best communications platform to ensure a highly reliable diagnostic tool.

Here are just some of the reasons that you can rely upon Nexus RF.

900 MHz Mesh Networking System

The Nexus RF system utilises mesh networking technology which allows for neighbouring nodes to pass messages along the network and hence extend the range of the system. In addition the mesh network ensures multiple potential communication paths so that data always has a way back to the Controller. The mesh network connections are formed automatically and change dynamically to suit the RF environment.

Automatic route optimisation ensures the shortest path is used each time.

The Nexus RF mesh network operates in the 915 - 928 MHz ISM band, providing superior penetration through building materials and ensuring network integrity.

Optimum Channel Selection

In addition to the benefits provided by the 900 MHz band, the Nexus RF system also features optimum channel selection technology utilising the full spectrum of the band to ensure trouble free operation.

Foolproof Installation

The Nexus RF system is as simple to install as a non-monitored single point system. The performance of the system is in no way compromised by poor cable installation between nodes. As long as the power is correctly connected to the unit, the system will be functional.

Self Monitoring

Like the Nexus models before it, the Nexus RF system is self monitoring and can diagnose any network problems. In fact, since there are multiple communications paths for each node, the system is virtually self-healing.

Independent System

The operation of emergency lighting is not impeded by nor dependant upon Nexus RF which is simply used to test and monitor fittings. A Nexus RF light fitting can be removed from or added anywhere within the Nexus RF network without interruption to the operation of the system.

Each of the fittings store their own previous test results, maintenance history, location, unit type and other information. If anything should happen to the Area Controller, the network will automatically rebuild with all the fitting history.

Stanilite Reputation

Stanilite is a well known and trusted brand within the emergency lighting market and has a proven track record with the Nexus data cabled system. The Nexus RF system exhibits the same attention to detail and focus on building safety that has made Stanilite Australia's number one choice for emergency lighting systems.

Simplicity

One of the guiding principles in designing the Nexus RF system was to make it as simple as possible for both the installer and end user.

Simple Australian Standards Compliance

Then Nexus RF system makes compliance with AS2293.2 and therefore various state and local regulations very easy. The system is able to run the required 6 monthly discharge tests, create maintenance logs and run compliance reports to assist in making sure that a crucial building safety system is operational. The system provides reliable data that is not compromised by human error and makes it quick and easy to access.

SPU Style Installation

With no data cables to worry about, the Nexus RF enabled units simply need to be connected to the mains power as per a normal non-monitored installation. On some fittings there will be the need to attach an external antenna to the ceiling but that is a simple "position and fix" operation as the antenna is already connected to the unit. The contractor does not have to be concerned with network communications at all.

Hassle Free System Commissioning

Thomas & Betts will provide the commissioning spreadsheet template which includes columns for the collection of the following information; MAC address, SPU ID, group number, building, position, floor, area, drawing, grid reference, distribution board and circuit.

Easy System Controls

The Nexus RF system features a graphical user interface (GUI) that is accessible on the wireless Area Controller, through direct PC connection or through a remote PC connection. This interface makes it very easy for the user to understand the status of the system, run system diagnostics, produce reports and much more.

Through Life Support

Thomas & Betts provides a unique, nation wide Through-Life Product Support Service to assist users at every stage of the system's life. Nexus specialists are available to offer assistance over the phone or in the field if required, throughout the life of the system.

If you require further assistance, contact the Thomas & Betts Service in Australia on 1300 666 595, Monday to Friday, 8.30am to 4.30pm (AEST) and ask for help. Our trained service personnel will usually be able to take your call immediately and assist you in resolving your difficulty. Thomas & Betts is committed to providing valuable Through-Life Support for its products.

Ph: 1300 666 595
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Flexibility

All buildings and building owners are inherently different. Nexus RF wireless technology copes with building variations and the Area Controller even allows the user to choose the most suitable backbone. The system also provides for multiple communication options to enable remote system interrogation.

Wireless Technology

Buildings with difficult layouts, sites with multiple buildings, heritage sites, all of these once troublesome projects are now made child's play using wireless mesh networking. The Nexus RF 900 MHz mesh network has been proven to penetrate difficult substrates such as masonry walls making the whole system suitable for a wide variety of applications.
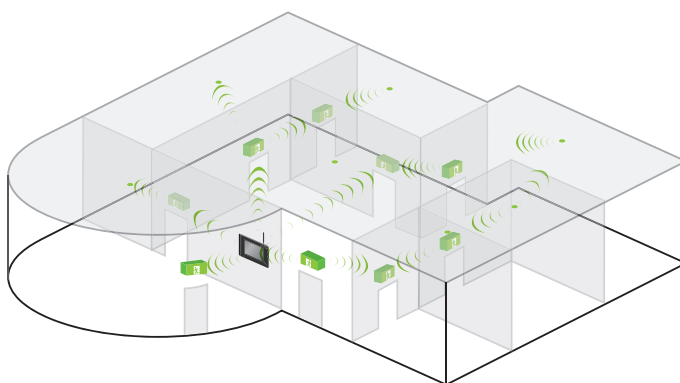
User Choice

The advanced wireless Area Controller has been designed to give the user ultimate choice. The system can use an existing communications backbone or choose the one that best suits. Communication between the Routers and the Area Controller will be possible via ethernet LAN, WLAN.

Even how you use the Nexus RF software tools is a matter of user choice. The Nexus RF system can be accessed through the Area Controller unit itself or it can be operated via remote control through an IP connection. The Nexus RF wireless Area Controller acts as a website server and hence the remote computer does not need any special software other than a website browser.
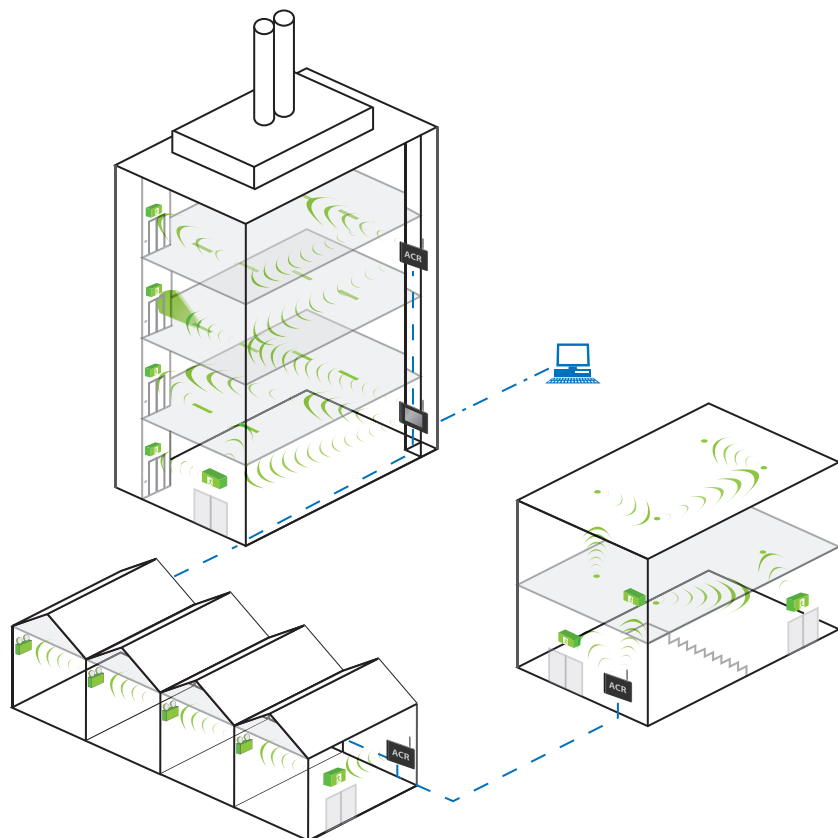
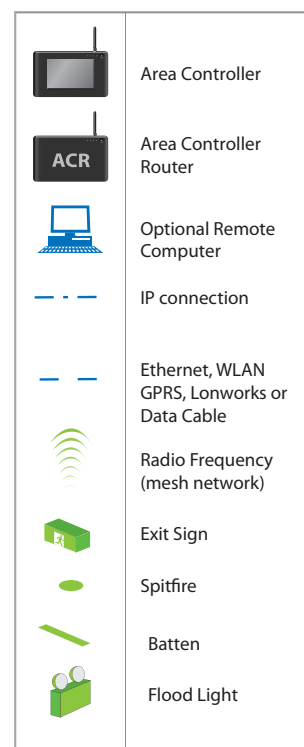# What Does a Nexus RF System Look Like?

Nexus RF Small System

In a system of less than 100 nodes it is most likely that the only hardware required, other than the lighting units themselves, is an Area Controller. All communication would occur wirelessly and installation would not vary greatly from a non-monitored system. Once the fittings are in place, the system will self discover and establish the mesh network. The building itself could be quite large as each node only needs to be able to communicate with its close neighbours and does not need to communicate directly with the Area Controller.

Nexus RF Small System

Nexus RF Large System

Area Controller	
ACR	Area Controller Router
Optional Remote Computer	
IP connection	
Ethernet, WLAN GPRS, Lonworks or Data Cable	
Radio Frequency (mesh network)	
Exit Sign	
Spitfire	
Batten	
Flood Light	

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Nexus RF Large System

The Nexus RF system has been designed to be extremely flexible and provides for a range of system options. Each large site will need to be assessed for the best system solution with the assistance of Thomas & Betts technical staff.

The basic Nexus RF system is designed to run on an ethernet system which is present in most modern buildings however through a range of interface cards the backbone of the network could be WLAN.

As with the small system, site performance will be optimised through the careful selection and placement of Area Controller Routers and the Area Controller to form efficient clusters. Building layout and materials will also play some role in determining the best solution to deliver a highly effective means of meeting AS2293.2 testing and maintenance requirements.
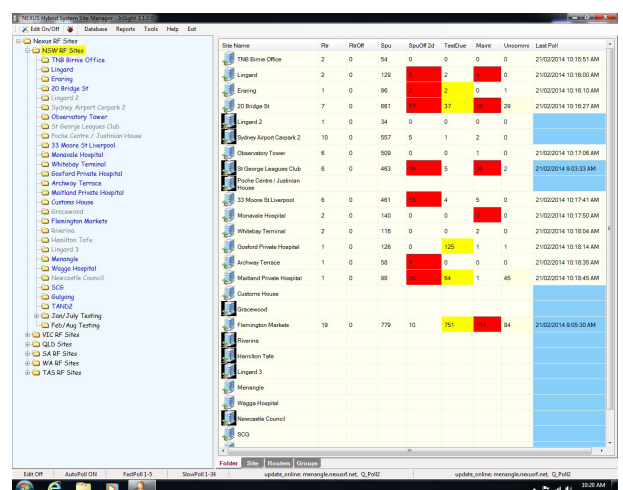
The interrogation of the Nexus database can be achieved through a variety of means. Nexus RF is easily adapted to local or remote monitoring of the system. Locally, the Nexus utilities can be accessed directly through the Area Controller or through a PC connected to the Area Controller. Remotely, the Area Controller can be accessed through a broadband IP connection. In either case, the PC requires no special software other than a website browser.

InSight Application

Around the corner or around the world, Nexus InSight™ opens a window to Stanilite Nexus monitored emergency lighting systems no matter how widely dispersed the systems may be. InSight is compatible with Nexus RF systems and will support future Nexus Hybrid product releases.

Installed on any windows computer with access to the TCP/IP - networks on which the target Nexus monitored systems operate - access may be via direct connection, VPN or via the internet - Nexus InSight allows users to organise connected sites into hierarchical "tree" structures, without limits on grouping.

High level tasks may be undertaken as required by users, including scheduling of system discharge tests, generation of test reports, production of work instructions for maintenance and repair activities and access to a range of system related statistical data. InSight allows users to view system status at a number of levels.

What is the Nexus RF DLP/Commissioning Package?

Nexus RF system commissioning and DLP support packages further simplify system implementation. When offered as part of our system quotation and purchased, these packages provide for commissioning of the Nexus RF system by a Thomas & Betts trained technician, together with testing and repairs through a 12 month defect liability period.

Quantities of Area Controllers and Routers required are estimated for system quotation purposes, based on the number of fittings to be included in the system. A detailed analysis of the required network structure, together with assessment of site-specific requirements such as signal repeaters and directional antennas, should be undertaken

as additional system components may need to be purchased to ensure a successful installation. This is particularly important for large or complex sites

Stanilite staff will be pleased to assist you in assessing the hardware requirements for your site. Please contact our National Customer Service Centre on 1300 666 595 for further information.

Commissioning packages are available based on the number of fittings on the site or current project stage to be commissioned.

Catalogue No	System Size
RFCOMP1	0 - 90 Fittings
RFCOMP2	91 - 180 Fittings
RFCOMP3	181 - 270 Fittings
RFCOMP4	271 - 360 Fittings
RFCOMP5	361 - 450 Fittings
RFCOMP6	451 - 540 Fittings
RFCOMP7	541 - 630 Fittings
RFCOMP8	631 - 720 Fittings
RFCOMP9	721 - 811 Fittings
RFCOMP10	812 - 902 Fittings
RFCOMP11	903 - 993 Fittings
RFCOMP12	994 - 1,084 Fittings
RFCOMP13	1,085 - 1,175 Fittings
RFCOMP14	1,176 - 1,266 Fittings
RFCOMP15	1,267 - 1,357 Fittings
RFCOMP16	1,358 - 1,448 Fittings
RFCOMP17	1,449 - 1,539 Fittings
RFCOMP18	1,540 - 1,630 Fittings
RFCOMP19	1,631 - 1,721 Fittings
RFCOMP20	1,722 - 1,812 Fittings

User Guide Structure

Chapter 1 - Nexus RF System Structure

Introduces the main hardware and system components that make up a Nexus RF system.

Chapter 2 - Nexus RF System Design

Introduces the fundamental steps involved in designing, installing, commissioning and maintaining a Nexus RF system.

Chapter 3 - AC Version 1 - User Interface Guide

All monitoring, testing and reporting functionality of the Nexus RF system is available to an operator via the AC's touch screen LCD interface. This section comprehensively details the functions available via this interface.

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Chapter 4 - AC Version 2 - User Interface Guide

The new AC provides a revised user interface that incorporates the same functionality as per the existing AC interface, but utilises a larger touch screen. The larger interface has allowed us to implement the user interface to be more in line with the website type interface. This section comprehensively details the functions available via this interface.

Chapter 5 - AC/ACR Website User Interface Guide

An alternate to the AC's touch screen interface, which is typically adopted for larger systems, is the AC/ACR's website interface. This section details how the AC/ACR website interface is accessed and details the mechanism for navigating through the various website pages.

Chapter 6 - InSight Application

The InSight application allows multiple remote distinct Nexus RF sites to be integrated, monitored and tested from a central location. A suitable application for this software would be the national support of multiple KFC sites, each with their own Nexus RF install, from their Sydney head office. This section introduces the functionality provided by this application.

Appendices

Appendix A - Glossary of Terms

Appendix B - Nexus RF FAQ's

Appendix C - Unit Icons

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